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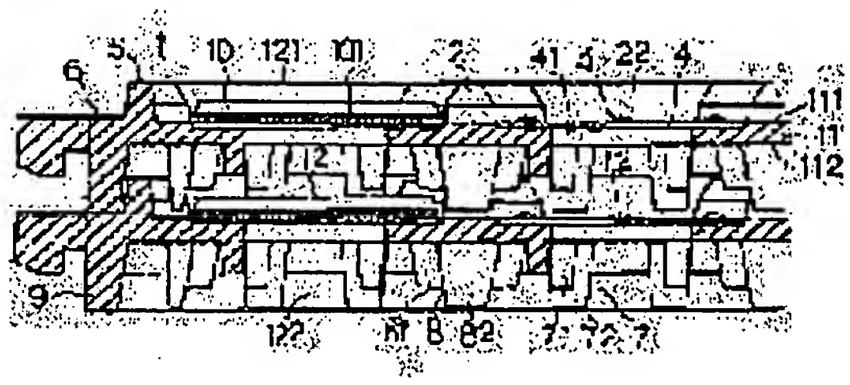
(54) IC CHIP STORAGE TRAY

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an IC chip storage tray that stores IC chips of different shapes without categorizing the IC chips according to whether a terminal extends on the surface or back of the IC chip, that can be stacked one on the other and allows the group of stacked trays to be turned upside down with the IC chips stored therein, that reliably stores the IC chips even when the trays are inverted, and that maintains a stable state in which the IC chips are sufficiently protected and supported.

SOLUTION: Each tray 1 has a first flat face 111 and a second flat face 112, and one of them serves as the surface and the other serves as the back. When the trays are stacked, one storage area 12 is defined by a first storage portion on the first flat face and a second storage portion on the second flat face. Side walls having notches between them, which define sides of the storage area, are formed so as to vertically extend from the surface of the first flat face. In addition, support projections 3 are formed at the edges of the first storage portion. On the second flat face, posts are formed in the positions that correspond to the notches of the side walls formed on the first flat face. Further, support posts are formed in the second storage portion.



LEGAL STATUS

[Date of request for examination]

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* NOTICES *

CLAIMS

[Claim(s)]
[Claim 1] The first flat surface and the second flat surface are the trays which make two sides of the same coin, and it has a stowage on the first flat surface and the second flat surface, respectively. And it is the tray which accumulate a tray, and the first flat surface and the second flat surface of a vertical stage are made to counter, and forms the stowage of a piece by the first stowage on the first flat surface, and the second stowage on the second flat surface. While carrying out erection formation of the side attachment wall which has the notch which forms the side face of a stowage on the first flat surface, a support projection is protruded at the edge in the first stowage. On the second flat surface IC chip receipt tray characterized by forming a support column in the second stowage while forming the side pole in the location corresponding to the notch of the side attachment wall formed on the first flat surface.
[Claim 2] IC chip receipt tray according to claim 1 which really forms the side pole and the support column on the second flat surface, considers as the projection which has a shoulder on a head and its both sides, and is characterized by having installed the shoulder in the method of the inside of the second stowage, and forming it in the location corresponding to the notch of the side attachment wall formed on the first flat surface while carrying out erection formation of the head.
[Claim 3] A side attachment wall is IC chip receipt tray according to claim 1 or 2 characterized by standing erect and forming **** of a flat-surface T typeface if it is in the side edge section of the flat-surface cross-joint form and tray which were installed from the contact of four stowages which adjoin mutually.
[Claim 4] IC chip receipt tray according to claim 1 to 3 characterized by preparing a crevice in the first stowage on the first flat surface.
[Claim 5] IC chip receipt tray according to claim 1 to 4 characterized by forming an edge wall in the side edge of the second flat surface.

[Translation done.]

* NOTICES *

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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the tray which contains IC chip.
[0002]
[Description of the Prior Art] The storing section which stores the IC chip which supports and protects an IC chip by the crevice, the side attachment wall, the projection, etc. which the receipt tray for storing and carrying the conventional IC chip formed the crevice, the side attachment wall, or the projection only in the tray top face, and was formed in this tray top face formed, and the means for forming the storing section which supports and protects an IC chip was not formed in a tray underside. Moreover, although there were some which have formed the means of the rib which **** IC chip contained by the tray of the lower berth between the trays of the lower berth in the tray underside, when it does not pass to the auxiliary member of the stowage of the tray of the lower berth, a stowage is not formed independently and a tray was made into a vertical upside-down, it was not what can fully support and protect IC chip.
[0003] Therefore, since IC chip is chiefly stored and protected [set and] by the tray top face, this storing section is fitted to the configuration of IC chip and it is formed in the proper configuration, IC chip which can be contained on the same tray will be limited to the thing of the same perfect configuration. For example, even if the tray on which the terminal which projects from IC chip made it adapted for what projects from the top face of IC chip on which, and was formed was IC chip of the same configuration, a terminal was not able to use it for what projects from the underside of IC chip.
[0004] Furthermore, although IC chip receipt tray stores IC chip in a tray, a tray is accumulated on many steps and preservation, haulage, etc. are used, usually The top face of the tray county which consists of two or more trays which this IC chip was stored and were accumulated on the underside When an underside is made as a top face and a vertical side is made into reverse, IC chip will escape from the storing section, and, as a result, being protected and supported of it will be lost in any way, or it will be set in the condition unstable only in only being laid on a rib etc. Therefore, with IC chip stored, an underside cannot be made as a top face and a vertical side cannot be made into reverse for the top face of a tray county on the underside. Even if it was possible to have made a metaphor up underside into reverse, when the tray of an upper case was removed from the tray of the lower berth, IC chip was not stabilized, both the top face of IC chip and an underside could not be observed and checked easily, but it was inconvenient to inspection of IC chip etc., and inconvenient also to handling and haulage.
[0005]
[Problem(s) to be Solved by the Invention] Then, containing is possible, without carrying out distinction by especially the terminal being stretched by the top face or underside of IC chip in this invention in IC chip which is not completely the same configuration. The vertical side of a tray group can be made into reverse, storing IC chip, when using it, having accumulated the tray. And also when you make it reverse, IC chip is stored in the storing section and fully let it be a technical problem to offer IC chip receipt tray which can maintain the stable condition of having been protected and supported.
[0006]
[Means for Solving the Problem] In order to solve the above-mentioned problem, in this invention, the first flat surface and the second flat surface are the trays which make two sides of the same coin. Have a stowage on the first flat surface and the second flat surface, respectively, and a tray is accumulated. It is the tray which the first flat surface and the second flat surface of a vertical stage are made to counter, and forms the stowage of a piece by the first stowage on the first flat surface, and the second stowage on the second flat surface. On the first flat surface While forming the side pole in the location corresponding to the notch of the side attachment wall which protruded at the edge in the first stowage and formed the support

projection on the second flat surface at it at the first flat-surface top while carrying out erection formation of the side attachment wall which has the notch which forms the side face of a stowage, it is characterized by forming a support column in the second stowage.

[0007]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained according to drawing. the first flat-surface 111 top of the plate 11 with which 1 is a tray and the first flat surface 111 and the second flat surface 112 make a front flesh side -- a side attachment wall -- a part -- **** 2, 2 --, **** 2 and the notch 22 between two, and 22 -- while forming the support projection 3, 3 --, a crevice 4, 4 --, and a frame wall 5, projection 7, 7 --, projection 8, 8 --, and an edge wall 9 are formed and fabricated on the second flat surface 112. These projections 7 and 8 are formed in the shape of a stage, and a crest type. A stowage 12 is formed of the first flat surface 111 and **** 2, the first stowage 121 formed of 2 --, and projection 7, 7 -- and the second stowage 122 formed of projection 8, 8 --, and the second flat surface 112, and the stowage 12 is isolated by **** 2, 2 --, projection 7, 7 -- and projection 8, and 8 -- with other adjoining stowages 12 and adjoining 12 --.

[0008] Although a tray 1 is fabricated using the synthetic resin which has the thermoplasticity of polystyrene, polyethylene, polypropylene, vinyl chloride resin, etc., using what added elasticity material, such as the rubber which has conductive material and resiliency, such as carbon, graphite, etc. which have conductivity, for example, polybutadiene etc., and giving conductivity and resiliency to a tray for electrification prevention is recommended. As an addition of these constituents, it prepares, for example at a rate of 70 percent of polystyrene, ten percent of carbon, and twenty percent of polybutadienes. Although it is convenient to fabricate with injection molding as the shaping approach, of course, it is not what is restricted to this.

[0009] **** 2 is one gestalt of a side attachment wall, and a side attachment wall is a wall which forms adjoining first stowage 121,121 --. A side attachment wall stands erect on the rim of the first stowage 121, and forms the side face of the first stowage 121. The notch 22 over between the first stowage 121,121 which adjoins this side attachment wall for every side is formed in the center of side-attachment-wall abbreviation. This notch 22 serves as a part where the side pole of the tray 1 which counters when a tray 1 and 1 -- are piled up, or the heads 72 and 82 of projections 7 and 8 are inserted. This notch 22 is **** 2 and 2. -- It forms flat-tapped with the first flat surface 111 by the notch of the side attachment wall of a between, and forms over width of face suitably for every side face of the first stowage 112. If the side pole or the heads 72 and 82 of projections 7 and 8 can be inserted, a notch 22 does not need to be the same width of face as the side pole or the heads 72 and 82 of projections 7 and 8, and is good also as a notch 22 occupying most side attachment walls, and a wall forming only in the few width of face of side-attachment-wall ends. Moreover, the notch 22 of it being good for one side attachment wall also as forming two or more is natural.

[0010] **** 2 is a member which forms a part of side face of the stowage 12 of the abbreviation rectangle which contains the IC chip 10, i.e., the corner of a side face, it installs from the four corners of the first stowage 121 on the first flat surface 111, and what is a cross-joint form or touches a frame wall 5 in the cross section stands the cross section erect to T typeface. Thus, **** 2 erects a part of periphery of the first stowage 121, and the periphery part not standing erect makes **** 2 flat-tapped with the first flat surface 111. The notch 22 of the periphery part, i.e., a side attachment wall, which does not stand **** 2 erect may be formed in the center of side-attachment-wall abbreviation for every side at piece place proper width of face, and the width of face of a notch 22 may become large more than the width of face to which a side attachment wall stands erect. In addition, a notch 22 is good for the side attachment wall of one side also as forming two or more pieces. **** 2 is formed more than the height which applied the height of the support projection 3 to the height of the IC chip 10 to contain. Although the corner of a side attachment wall is really formed, the thing of stowage 121,121 -- which adjoins by **** 2 of a piece in this example which may be formed separately respectively is natural. Moreover, **** 2 is formed in the shape of hollow, and forms the angle cinclides 21, and measuring economization of the raw material of lightweight-izing of a tray 1 and a tray 1 is recommended.

[0011] The IC chip 10 is laid and the support projection 3 supports the IC chip 10 from a lower part, when a tray 1 uses it for the first flat surface 111, making it into a top face. The support projection 3 protrudes in the part which does not contact the terminal 101 of the IC chip 10 in the four corners of a stowage 121 at least in the stowage 121 on the first flat surface 111. Although especially the configuration is not limited, the height protrudes in proper high [to which the terminal 101 of the IC chip 10 does not contact a plate 11] while making all support projections 3 and 3 -- into homogeneity.
[0012] Crevices 4 are the support projections 3 and 3. -- When the IC chip 10 is laid upwards, it is for the terminal 101 of the IC chip 10 to prevent contacting the first flat surface 111, and they are the support projections 3 and 3 in the first stowage 112 on the first flat surface 111. -- It forms inside suitably at the depth. In addition, these crevices 4 are the support projections 3 and 3. -- If the terminal 101 of the IC chip 10 does not contact the first flat surface 111 when the IC chip 10 is laid upwards, it is not necessary to form. Moreover, it forms as a crevice hole 41 which penetrates some or all of a crevice 4 at the second flat surface 112, and measuring economization of the raw material of lightweight-izing of a prevention of contact and a tray 1 with the first flat surface 111 of a terminal 101 and a tray 1 is recommended.
[0013] When a frame wall 5 piles up a tray 1 and 1 --, it is a member for combining the first stowage 121 and the second stowage 122 with accuracy, and preventing breakage of the IC chip 10 by engagement to the edge wall 9 of the tray 1 of an upper case, by preventing the strike slip of the tray 1 of an upper case, and the tray 1 of the lower berth. A frame wall 5 is the stowage 121,121 on the first flat surface 111 of a tray 1. -- Inside a side edge 6, it forms in the same height as **** 2 over a periphery.
[0014] A side edge 6 is the member of the heel of the plate 11 located in the outside of the frame wall 5 of the first flat surface 111, and is a part which lays the edge wall 9 of the tray 1 of an upper case in case the first flat surface 111 is used as a top face and a tray 1 and 1 -- are piled up, and is laid on the edge wall 9 of the tray 1 of the lower berth in case it piles up by using the second flat surface 112 as a top face.
[0015] Projections 7 and 8 are members formed in the shape of a stage and crest type constituted from heads 72 and 82 and shoulders 71, 71, 81, and 81 installed from the side face which counters. On the second flat surface 112, projections 7 and 8 install the shoulders 71 and 81 in the direction of the interior of stowage 122 while erection formation is carried out so that the heads 72, 72, 82, and 82 may be located in the location corresponding to between **** 2 which constitutes one side of the side attachment wall formed on the first flat surface, and 2, and they constitute a part of side face of a stowage 12 from heads 72, 72, 82, and 82. Heads 72 and 82 form in the same as that of an edge wall 9, or the height not more than it the side where the side which intersects perpendicularly between **** 2 and 2 is parallel between **** 2 and 2 by **** 2 and this width of face while forming them in the proper thickness which can be inserted in a notch 22. When a tray 1 and 1 -- are piled up, even if heads 72 and 82 contact the first flat surface 111, it is not necessary to carry out them.
[0016] It forms lower than heads 72 and 82, when the IC chip 10 is laid in shoulders 71, 71, --, 81 and 81 --, the upper bed section of the IC chip 10 does not project from heads 72 and 82, and shoulders 71 and 81 are formed in the support projection 3 on the first flat surface 111, and the proper height with 3 -- which can install the IC chip 10 in between. Although it installs two projections 7 and 8 at a time in the location corresponding to between **** 3 which constitutes one side of the side attachment wall formed on the first flat surface, and 3, respectively, they are suitably good also as a piece or installing three or more pieces. When two or more notches 22 and 22 -- are formed in one side of the side attachment wall on the first flat surface 111, it forms corresponding to the number of notches 22.
[0017] Thus, although formed of heads 72, 72, --, 82 and 82 --, the side face of a stowage 12 is as good [between a head 72 and 72,] between **** 2, a head 72, and 82 as **** 2 and 2 -- also as a thing of the ** type projections 7, 7, --, 8 and 8 -- to form without a gap, although a gap will be formed between a head 82 and 82. That is, by making a head 72 and a head 82 correspond to the configuration of the notch 22 between **** 2 and 2, and considering as the same configuration, you may form so that an adjoining stowage 12 and adjoining 12 -- may be

intercepted thoroughly [in a side face].
[0018] Moreover, the member which forms the side face of the member which lays the IC chip 10 on the second flat surface 112, and a stowage 12 Really form by the shoulders 71 and 81 which lay the IC chip 10, and the heads 72 and 82 which form the side face of a stowage 12, and it does not form as projections 7 and 8. Carry out piece [every] erection formation of the support column which lays the IC chip 10 independently, respectively the at least 1 side side at the edge in a stowage 122, and the side pole which becomes a part of side face of a stowage 12 is corresponded to the notch 22 of the side attachment wall of the first flat surface 111. It is good also as carrying out piece [every] erection formation at least to the notch 22 of 1. The side pole is made into the same configuration as heads 72 and 82, and should just also make a support column the same configuration as shoulders 71 and 81.
[0019] When the first flat surface 111 is used as a top face and a tray 1 and 1 -- are piled up, head [of the tray 1 of an upper case] 72, 72 -- and 82, and 82 -- is **** 2 and 2 of the tray 1 of the lower berth. -- It is inserted in between and the profile side face of a stowage 12 is constituted with **** 2 and 2 --. In case shoulder 71, 71 -- and 81, and 81 -- uses the second flat surface 112 for the stowage 12 interior, making a projection and a tray 1 high [same] and making on the top face, it becomes the part in which the IC chip 10 is laid.
[0020] An edge wall 9 carries out erection formation from a side edge 6 over the periphery of a tray 1 at the side edge section of the second flat surface 112. In case an edge wall 9 uses the first flat surface 111 as a top face and uses a tray 1 and 1 -- in piles, it is laid on the side edge 6 of the tray 1 of the lower berth, is a member which supports the tray 1 of an upper case, is located in the outside of the frame wall 5 of the tray 1 of the lower berth, and prevents the strike slip of the tray 1 of an upper case, and the tray 1 of the lower berth by engagement to a frame wall 5. Since an edge wall 9 determines the height of a stowage 12, it forms the IC chip 10 in a stowage 12 proper high [more than that receipt is possible and the height of heads 71 and 81].
[0021] Next, the operation of a tray 1 is explained. It determines whether to use it corresponding to the difference of the field in which the configuration of the IC chip 10 contained first, especially the terminal 101 are formed by using the first flat surface 111 or the second flat surface 112 as a top face, the first flat surface 111 or the second flat surface 112 is suitably used as a top face, and the IC chip 10 is contained to a stowage 121 or a stowage 122. Support projections 3 and 3 in the stowage 121 which used the first flat surface 111 as the top face, turned down the field in which terminal 101 child is formed, and was surrounded by **** 2 and 2 -- in the IC chip 10 when the terminal 101 was formed in the underside of the IC chip 10 in this example -- It lays upwards. In this case, the terminal 101 of the IC chip 10 enters in a crevice 4, and does not contact a tray 1. Thus, on the side edge 6 of the lower berth, the edge wall 9 of an upper case is laid in stowage 121,121 --, and the IC chip 10, the tray 1 which contained 10 --, and 1 -- are put on it.
[0022] When a tray 1 and 1 -- pile up in this way, it is **** 2 and 2 of the lower berth. -- They are the projections 7 and 8 of an upper case in between. -- A head 72, 72 -- and a head 82, and 82 -- are inserted. And a stowage 12 and 12 -- are formed of the first flat surface 111, **** 2, 2 --, a head 72, 72 --, and a head 82, 82 -- and the second flat surface 112. Under the present circumstances, the shoulders 71 and 81 of the projections 7 and 8 of an upper case are the support projections 3 and 3 of the lower berth. -- It is located on the IC chip 10 top face currently laid upwards, and distance with the proper IC chip 10 is maintained, it does not touch, and the IC chip 10 is not pressed. Of course, it is good also as forming heads 72 and 82 and the support projection 3 in high suitably, and making the IC chip 10 pinch by the support projection 3 and 3 -- with heads 72, 72, --, 82 and 82 --.
[0023] Thus, the IC chip 10, the tray 1 which 10 -- was contained and was accumulated, and the tray 1 of 1 -- which does not contain the IC chip 10 on the maximum upper case of a tray group are piled up. And the vertical side of a tray group is made into reverse if needed [, such as inspection,], and it is made for the second flat surface 112 to turn into a top face. In this case, the IC chip 10 moves to the stowage 122 of other trays 1 in the stowage 121 of the tray 1 of 1 from the condition currently supported by the support projection 3 and 3 -- from the lower part,

without escaping from the inside of a stowage 12, and is supported by shoulder [of projections 7, 7, 8, and 8] 71, 71 -- and 81, and 81 -- from a lower part, and a head 72, 72 --, a head 82, and 82 -- protect a side face. And even if it removes the tray 1 of an upper case, the IC chip 10 is stabilized on a tray 1, and is contained.

[0024]

[Effect of the Invention] In invention according to claim 1, the first flat surface and the second flat surface are the trays which make two sides of the same coin as mentioned above. Have a stowage on the first flat surface and the second flat surface, respectively, and a tray is accumulated. It is the tray which the first flat surface and the second flat surface of a vertical stage are made to counter, and forms the stowage of a piece by the first stowage on the first flat surface, and the second stowage on the second flat surface. On the first flat surface While carrying out erection formation of the side attachment wall which has the notch which forms the side face of a stowage, a support projection is protruded at the edge in the first stowage. On the second flat surface While forming the side pole in the location corresponding to the notch of the side attachment wall formed on the first flat surface Since the support column was formed in the second stowage, it is possible for it not to be influenced by whether the configuration of IC chip, especially the terminal which projects from IC chip are formed in the top face of IC chip, or it is carried by the underside, but to contain various IC chips which are not the same configurations. Moreover, it is possible to make into a vertical upside-down the tray group accumulated with IC chip contained, and since observation inspection of both the top face of IC chip and the underside can be carried out easily, it is convenient for inspection of IC chip, and convenient. [it becomes possible handling and to carry about the tray group accumulated containing IC chip without paying conventionally still more careful attention, and]

[0025] Moreover, while according to invention according to claim 2 really forming the side pole and the support column on the second flat surface, considering as the projection which has a shoulder on a head and its both sides and carrying out erection formation of the head in the location corresponding to the notch of the side attachment wall formed on the first flat surface Since the shoulder was installed and formed in the method of the inside of the second stowage, it became possible to be stabilized more and to hold IC chip contained certainly. Moreover, manufacture of a tray can also be made easily and cheap.

[0026] Moreover, since according to invention according to claim 3 it stood erect and **** of a flat-surface T typeface was formed if the side attachment wall was in the side edge section of the flat-surface cross-joint form and tray which were installed from the contact of four stowages which adjoin mutually, it became possible to be stabilized more and to hold IC chip contained certainly.

[0027] Moreover, according to invention according to claim 4, since the crevice was prepared in the first stowage on the first flat surface, it became possible [it is possible to prevent the contact to the tray of the terminal of IC chip more, and / without changing the class of tray by the merits and demerits of the terminal of IC chip] to correspond to the configuration of various terminals.

[0028] Moreover, while according to invention according to claim 5 preventing gap of the tray of an upper case and the lower berth certainly when a tray is piled up since the edge wall was formed in the side edge of the second flat surface, it is possible to prevent more effectively press of IC chip contained by the tray of the lower berth on the tray of an upper case.

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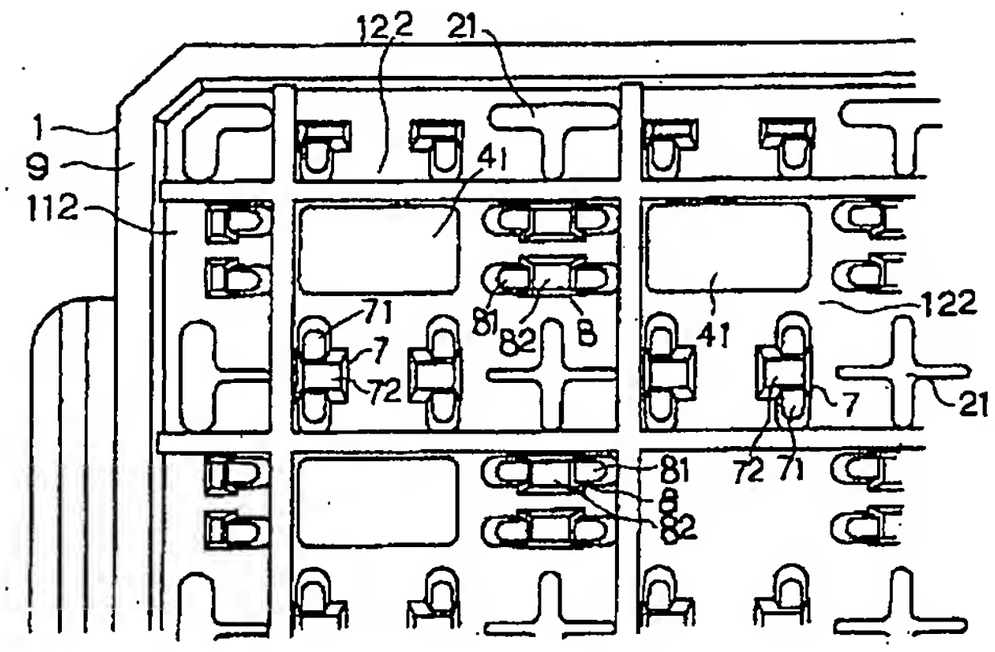
precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

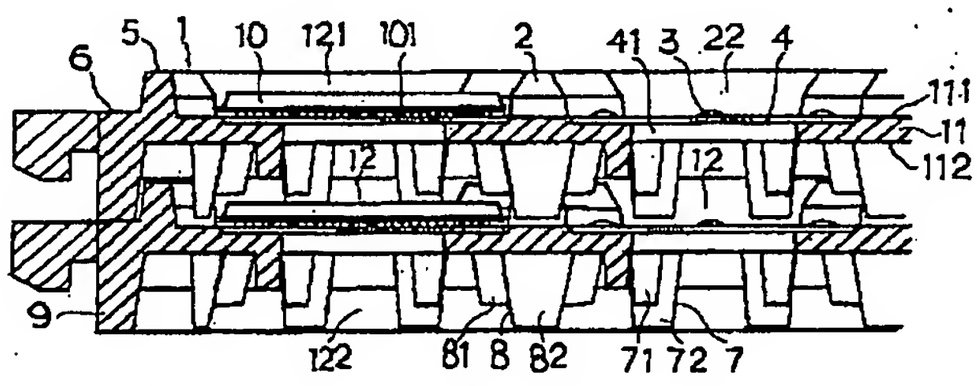
[Brief Description of the Drawings]
[Drawing 1] This invention one example top-face part drawing
[Drawing 2] This invention one example underside part drawing
[Drawing 3] The drawing 1 A-A sectional view in this invention one example busy condition
[Drawing 4] The drawing 1 B-B sectional view in this invention one example busy condition
[Drawing 5] The drawing 1 A-A sectional view in a busy condition besides this invention 1 example
[Description of Notations]
1 Tray
11 Plate
111 First Flat Surface
112 Second Flat Surface
12 Stowage
2 ****
21 Angle Cinclides
22 Notch
3 Support Projection
4 Crevice
41 Crevice Hole
5 Frame Wall
6 Side Edge
7 Projection
71 Shoulder
72 Head
8 Projection
81 Shoulder
82 Head
9 Edge Wall
10 IC Chip
101 Terminal

DRAWINGS

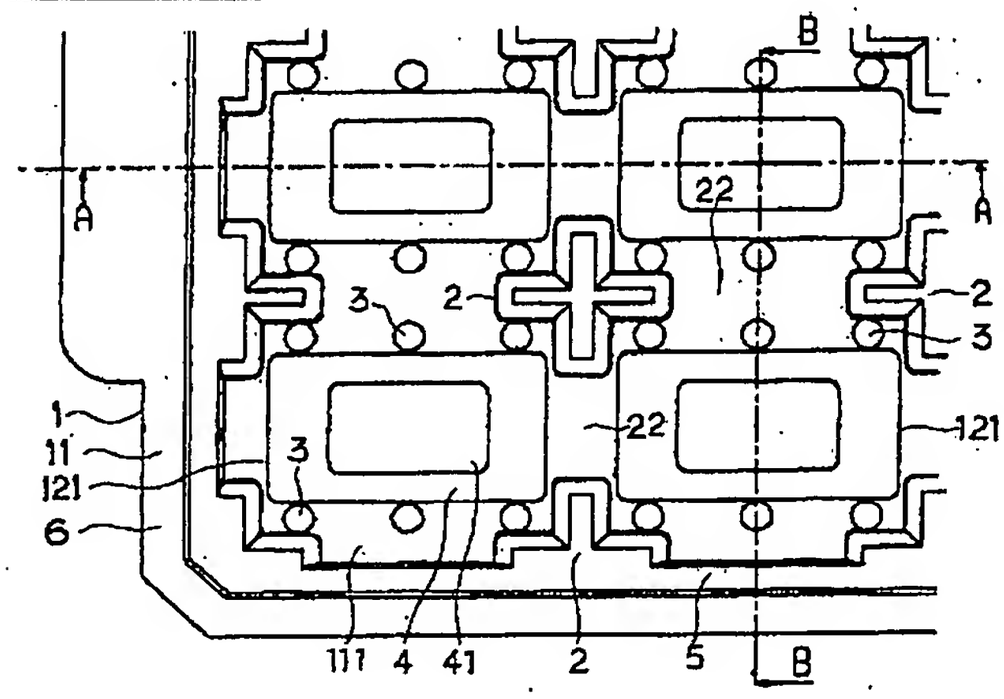
[Drawing 2]



[Drawing 3]



[Drawing 1]



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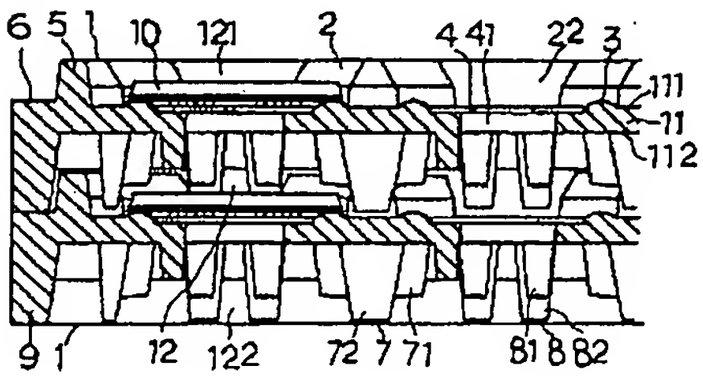
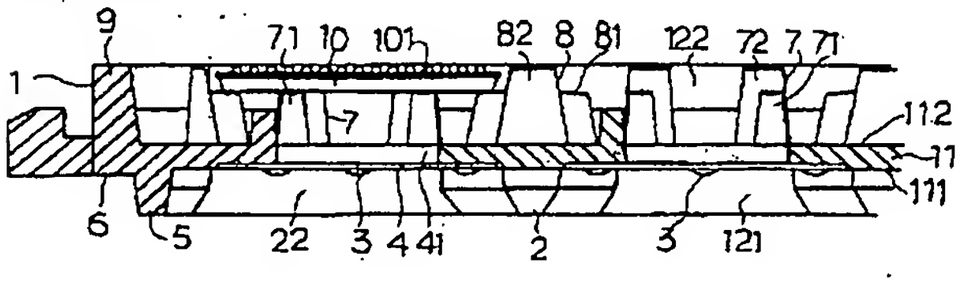


[Drawing 5]



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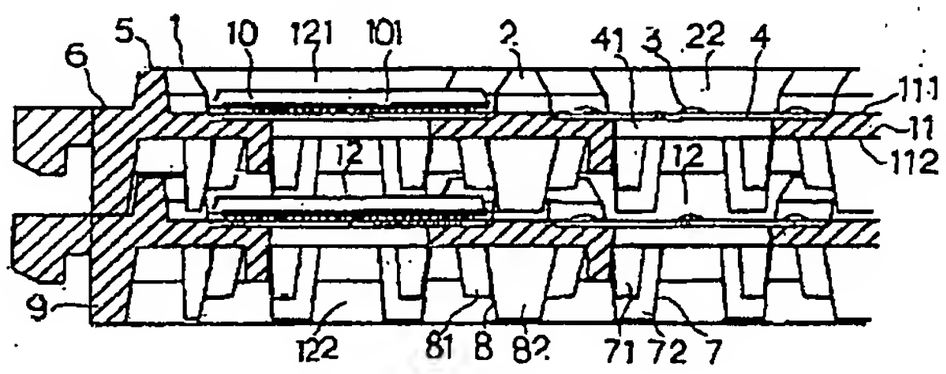
PA16

(54)【発明の名称】　ＩＣチップ収納トレー

(57)【要約】　（修正有）
【課題】　同一形状ではないＩＣチップを、特に端子がＩＣチップの上面或は下面に張設されていることによる区別をすることなく、収納することが可能で、トレーを積み重ねて使用する際にＩＣチップを格納したままトレー群の上下面を逆にすることができ、且つ逆にした際にもＩＣチップが格納部に格納され、充分に保護、支持された安定した状態を維持することが可能なＩＣチップ収納トレーを提供する
【解決手段】　第一平面１１１と第二平面１１２が表裏一体をなすトレー１であって、トレーを積み重ね、第一平面上の第一収納部と第二平面上の第二収納部により一個の収納部１２を形成し、第一平面上には、収納部の側面を形成する切欠部２２を有する側壁を植立形成すると共に、第一収納部内の端部に支持突起３を凸設し、第二平面上には、第一平面上に形成した側壁の切欠部に対応する位置に側柱を形成すると共に、第二収納部内に支持柱を形成する。



【特許請求の範囲】
【請求項１】　第一平面と第二平面が表裏一体をなすトレーであって、第一平面上及び第二平面上に夫々収納部を有し、且つトレーを積み重ね、上下段の第一平面と第二平面を対向させ、第一平面上の第一収納部と第二平面上の第二収納部により一個の収納部を形成するトレーであって、第一平面上には、収納部の側面を形成する切欠部を有する側壁を植立形成すると共に、第一収納部内の端部に支持突起を凸設し、第二平面上には、第一平面上に形成した側壁の切欠部に対応する位置に側柱を形成すると共に、第二収納部内に支持柱を形成したことを特徴とするＩＣチップ収納トレー。
【請求項２】第二平面上の側柱と支持柱を一体形成し、頭部とその両側に肩部を有する突起とし、第一平面上に形成した側壁の切欠部に対応する位置にその頭部を植立形成すると共に、肩部を第二収納部内方に延設して形成したことを特徴とする請求項１に記載のＩＣチップ収納トレー。
【請求項３】　側壁は相互に隣接する四個の収納部の接点から延設した平面十字形の及びトレーの側端部にあっては平面Ｔ字形の角壁を植立して形成することを特徴とする請求項１又は請求項２に記載のＩＣチップ収納トレー。
【請求項４】　第一平面上の第一収納部内には凹部を設けたことを特徴とする請求項１乃至請求項３に記載のＩＣチップ収納トレー。
【請求項５】　第二平面の側縁に縁壁を形成したことを特徴とする請求項１乃至請求項４に記載のＩＣチップ収納トレー。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】　本発明はＩＣチップを収納するトレーに関する。
【０００２】
【従来の技術】　従来のＩＣチップを格納、運搬するための収納トレーは、トレー上面にのみ凹部、側壁或は突起等を形成して、該トレー上面に形成された凹部、側壁或は突起等にてＩＣチップを支持、保護するＩＣチップを格納する格納部を形成しており、トレー下面にはＩＣチップを支持、保護する格納部を形成するための手段は設けられていなかった。又、トレー下面に、下段のトレーに収納されたＩＣチップを下段のトレーとの間に矜持するリブ等の手段を設けているものもあるが、下段のトレーの収納部の補助的部材にすぎず、独立して収納部を形成するものではなく、トレーを上下逆さまにした場合には、充分にＩＣチップを支持、保護することができるものではなかった。
【０００３】従って、ＩＣチップはもっぱらトレー上面においてのみ格納、保護されており、該格納部はＩＣチップの形状に適応させて適宜の形状に形成されているため、同一トレーにて収納することが可能なＩＣチップは完全な同一形状のものに限定されてしまい、例えばＩＣチップから突出する端子がＩＣチップの上面から突出しているものに適応させて形成されたトレーは、同一形状のＩＣチップであっても端子がＩＣチップの下面から突出しているものには使用することができなかった。
【０００４】更に、通常ＩＣチップ収納トレーはトレーにＩＣチップを格納し、トレーを何段にも積み重ねて保存、運搬等使用されるが、該ＩＣチップが格納され、積み重ねられた複数のトレーから構成されるトレー郡の上面を下面に、下面を上面に上下面を逆にした場合に、ＩＣチップは格納部から脱してしまい、その結果何ら保護、支持されることがなくなり、或は単にリブ等の上に載置されるのみで不安定な状態におかれることとなる。従って、ＩＣチップを格納したままトレー郡の上面を下面に、下面を上面に上下面を逆にすることができず、例え上下面を逆にすることが可能であっても上段のトレーを下段のトレーからはずした場合にはＩＣチップが安定せず、ＩＣチップの上面及び下面双方を容易には観察、点検することができず、ＩＣチップの検査等に不便であり、又、取扱い、運搬にも不便であった。
【０００５】
【発明が解決しようとする課題】　そこで、本発明では完全には同一形状ではないＩＣチップを、特に端子がＩＣチップの上面或は下面に張設されていることによる区別をすることなく、収納することが可能で、トレーを積み重ねて使用する際にＩＣチップを格納したままトレー群の上下面を逆にすることができ、且つ逆にした際にもＩＣチップが格納部に格納され、充分に保護、支持された安定した状態を維持することが可能なＩＣチップ収納トレーを提供することを課題とする。
【０００６】
【課題を解決するための手段】　上記問題を解決するため、本発明では、第一平面と第二平面が表裏一体をなすトレーであって、第一平面上及び第二平面上に夫々収納部を有し、且つトレーを積み重ね、上下段の第一平面と第二平面を対向させ、第一平面上の第一収納部と第二平面上の第二収納部により一個の収納部を形成するトレーであって、第一平面上には、収納部の側面を形成する切欠部を有する側壁を植立形成すると共に、第一収納部内の端部に支持突起を凸設し、第二平面上には、第一平面上に形成した側壁の切欠部に対応する位置に側柱を形成すると共に、第二収納部内に支持柱を形成することを特徴とする。
【０００７】
【発明の実施の形態】　以下、本発明の実施の形態を図に従って説明する。１はトレーであり第一平面１１１と第二平面１１２が表裏をなす平板１１の第一平面１１１上に側壁の一部たる角壁２，２…、角壁２，２間の切欠部２２，２２…、支持突起３，３…、凹部４，４…、枠

壁５を形成すると共に、第二平面１１２上に突起７，７…、突起８，８…、縁壁９を形成して成形する。該突起７、８は段状乃至山型に形成する。収納部１２は、第一平面１１１及び角壁２，２…により形成される第一収納部１２１と、突起７，７…、突起８，８…及び第二平面１１２により形成される第二収納部１２２により形成され、収納部１２は隣接する他の収納部１２，１２…と角壁２，２…、突起７，７…、及び突起８，８…により隔離されている。

【０００８】トレー１は、ポリスチレン、ポリエチレン、ポリプロピレン、塩化ビニル樹脂等の熱可塑性を有する合成樹脂を使用して成形するが、導電性を有するカーボン、グラファイト等の導電性材や弾力性を有するゴム、例えばポリブタジエン等の弾力材を添加したものを使用して、トレーに帯電防止のために導電性や弾力性をもたせることは推奨される。これら組成物の添加量としては、例えばポリスチレン７割、カーボン１割、ポリブタジエン２割の割合で調製する。成形方法として射出成形により成形するのが便利であるが、これに限られるものでないことは勿論である。

【０００９】角壁２は側壁の一形態であり、側壁は隣接する第一収納部１２１，１２１…を形成する壁である。側壁は第一収納部１２１の外縁上に植立し、第一収納部１２１の側面を形成する。該側壁には一辺毎に隣接する第一収納部１２１，１２１間に渡る切欠部２２を側壁略中央に形成する。該切欠部２２はトレー１，１…を重ねた際に対向するトレー1の側柱或は突起７、８の頭部７２、８２が挿入される箇所となる。該切欠部２２は角壁２，２…間の側壁の切欠部で第一平面１１１と面一に形成し、第一収納部１１２の一側面毎に適宜幅に渡って形成する。切欠部２２は側柱或は突起７、８の頭部７２、８２が挿入可能であれば、側柱或は突起７、８の頭部７２、８２と同一幅である必要はなく、切欠部２２が側壁の大部分を占め壁部が側壁両端の少幅にのみ形成することとしてもよい。又、切欠部２２は一側壁に二以上形成することとしてもよいことは勿論である。

【００１０】角壁２はＩＣチップ１０を収納する略方形の収納部１２の側面の一部即ち側面の角部を形成する部材であり、第一平面１１１上の第一収納部１２１の四隅から延設し、横断面を十字形の或いは枠壁５に接するものは横断面をＴ字形に植立する。このように角壁２は第一収納部１２１の外周の一部に植立させ、角壁２を植立しない外周部分は第一平面１１１と面一とする。角壁２を植立しない外周部分即ち側壁の切欠部２２は一辺毎に側壁略中央に一個所適宜幅に形成し、側壁が植立される幅以上に切欠部２２の幅が広くなってもよい。尚切欠部２２は一辺の側壁に二個以上形成することとしてもよい。角壁２は収納するＩＣチップ１０の高さに支持突起３の高さを加えた高さ以上に形成する。本実施例においては一個の角壁２により隣接する収納部１２１，１２１…の側壁の角部を一体形成するが、各々別個に形成してもよいことは勿論である。又、角壁２は中空状に形成して角壁孔２１を設け、トレー１の軽量化、トレー1の原料の節約を計ることは推奨される。

【００１１】支持突起３はトレー１が第一平面１１１を上面にして使用される場合に、ＩＣチップ１０が載置され，ＩＣチップ１０を下方より支持するものである。支持突起３は、第一平面１１１上の収納部１２１内に少なくても収納部１２１の四隅にＩＣチップ１０の端子１０１に接触しない箇所に凸設する。その形状は特に限定されないが、その高さは、すべての支持突起３，３…を均一にすると共に、ＩＣチップ１０の端子１０１が平板１１に接触しない適宜高に凸設する。

【００１２】凹部４は支持突起３，３…上にＩＣチップ１０を載置した際にＩＣチップ１０の端子１０１が第一平面１１１に接触することを防止するためのものであり、第一平面１１１上に、第一収納部１１２内の支持突起３，３…の内側に適宜深さに形成する。尚、該凹部４は支持突起３，３…上にＩＣチップ１０を載置した際にＩＣチップ１０の端子１０１が第一平面１１１に接触することがなければ形成しなくてもよい。又、凹部４の一部或は全部を第二平面１１２に貫通する凹部孔４１として形成し、端子１０１の第一平面１１１との接触の防止、トレー１の軽量化、トレー1の原料の節約を計ることは推奨される。

【００１３】枠壁５はトレー１，１…を重ねた際に上段のトレー１の縁壁９との係合により、上段のトレー１と下段のトレー１との横ずれを防止することにより、第一収納部１２１と第二収納部１２２を正確に結合させ、ＩＣチップ１０の破損を防止するための部材である。枠壁５はトレー１の第一平面１１１上の収納部１２１，１２１…の外周に渡って側縁６の内側に、角壁２と同一の高さに形成する。

【００１４】側縁６は第一平面１１１の枠壁５の外側に位置する平板１１の外端部の部材であり、トレー１，１…を第一平面１１１を上面にして重ねる際に上段のトレー１の縁壁９を載置し、第二平面１１２を上面にして重ねる際に下段のトレー１の縁壁９上に載置する個所である。

【００１５】突起７、８は頭部７２、８２とその対向する側面から延設した肩部７１，７１、８１，８１で構成する段状乃至山型に形成される部材である。突起７、８は第二平面１１２上に、第一平面上に形成された側壁の一辺を構成する角壁２，２間に対応する位置にその頭部７２，７２、８２，８２が位置するように植立形成し、頭部７２，７２、８２，８２にて収納部１２の側面の一部を構成すると共に、その肩部７１，８１を収納部１２２内部方向へ延設する。頭部７２，８２は角壁２，２間に直交する辺は角壁２と同幅に、角壁２，２間に平行する辺は切欠部２２に挿入可能な適宜の厚さに形成すると

共に縁壁９と同一或はそれ以下の高さに形成する。トレー１，１…を重ねた際に頭部７２，８２は第一平面１１１に接触してもしなくてもよい。

【００１６】肩部７１、８１は頭部７２、８２より低く形成し、肩部７１，７１…、８１，８１…にＩＣチップ１０を載置した際にＩＣチップ１０の上端部が頭部７２、８２より突出せず、且つ、第一平面１１１上の支持突起３，３…との間にＩＣチップ１０を設置可能な適宜高さに形成する。突起７、８は第一平面上に形成された側壁の一辺を構成する角壁３，３間に対応する位置に夫々二個づつ設置するが、適宜に一個或は三個以上設置することとしてもよい。第一平面１１１上の側壁の一辺に二以上の切欠部２２，２２…が形成されている場合には、切欠部２２の数に対応して形成する。

【００１７】このように収納部１２の側面は角壁２，２…と突型突起７，７…、８，８…の頭部７２，７２…、８２，８２…により形成されるが、角壁２と頭部７２，８２間、頭部７２，７２間、頭部８２；８２間には間隙が形成されることになるが、間隙なく形成することとしてもよい。即ち、頭部７２、頭部８２を角壁２，２間の切欠部２２の形状に対応させ同一形状とすることにより、隣接する収納部１２，１２…とが側面にて完全に遮断されるように形成してもよい。

【００１８】又、第二平面１１２上に、ＩＣチップ１０を載置する部材及び収納部１２の側面を形成する部材を、ＩＣチップ１０を載置する肩部７１、８１と収納部１２の側面を形成する頭部７２、８２により一体形成して突起７、８として形成するのではなく、夫々独立してＩＣチップ１０を載置する支持柱を収納部１２２内の端部に少なくとも一側辺に一個ずつ植立形成し、収納部１２の側面の一部となる側柱を第一平面１１１の側壁の切欠部２２に対応して、一の切欠部２２に対して少なくとも一個ずつ植立形成することとしてもよい。側柱は頭部７２、８２と同様の形状とし、支持柱も肩部７１、８１と同様な形状とすればよい。

【００１９】トレー１，１…を第一平面１１１を上面にして重ねた際に上段のトレー１の頭部７２；７２…及び８２；８２…は下段のトレー１の角壁２；２…間に挿入され、角壁２，２…と共に収納部１２の輪郭側面を構成する。肩部７１，７１…及び８１，８１…は収納部１２内部に同一高に突出し、トレー１を第二平面１１２を上面にして使用する際にＩＣチップ１０が載置される部位となる。

【００２０】縁壁９は第二平面１１２の側端部にトレー１の外周に渡って側縁６より植立形成する。縁壁９はトレー１，１…を第一平面１１１を上面にして重ねて使用する際に下段のトレー１の側縁６上に載置し、上段のトレー１を支持する部材であり、下段のトレー１の枠壁５の外側に位置し、枠壁５との係合により、上段のトレー１と下段のトレー１との横ずれを防止する。縁壁９は収納部１２の高さを決定するものであるので、収納部１２にＩＣチップ１０を収納可能且つ、頭部７１、８１の高さ以上の適宜高に形成する。

【００２１】次に，トレー１の使用方法について説明する。先ず収納するＩＣチップ１０の形状、特に端子１０１が形成されている面等の相違に対応して第一平面１１１或は第二平面１１２を上面にして使用するかを決定し、適宜に第一平面１１１又は第二平面１１２を上面にし、収納部１２１又は収納部１２２にＩＣチップ１０を収納する。本実施例においてはＩＣチップ１０の下面に端子１０１が形成されている場合、第一平面１１１を上面にし、端子１０１子が形成されている面を下にして、ＩＣチップ１０を角壁２，２…に囲まれた収納部１２１内の支持突起３，３…上に載置する。この際にＩＣチップ１０の端子１０１は凹部４内に入り、トレー１に接触することはない。このようにして収納部１２１，１２１…にＩＣチップ１０，１０…を収納したトレー１，１…を下段の側縁６上に上段の縁壁９を載置して重ねる。

【００２２】トレー１，１…がこのように重ねられると、下段の角壁２，２…間に上段の突起７，８…の頭部７２，７２…及び頭部８２，８２…が挿入される。そして、第一平面１１１、角壁２，２…、頭部７２，７２…、頭部８２，８２…及び第二平面１１２により収納部１２，１２…が形成される。この際、上段の突起７、８の肩部７１、８１は下段の支持突起３，３…上に載置されているＩＣチップ１０上面上に位置し、ＩＣチップ１０とは適宜の距離を保ち接せず、ＩＣチップ１０を押圧することはない。勿論、頭部７２、８２と支持突起３を適宜高に形成して、頭部７２，７２…；８２，８２…と支持突起３，３…によりＩＣチップ１０を挟持させることとしてもよい。

【００２３】このようにＩＣチップ１０，１０…が収納され積み重ねられたトレー１，１…のトレー群の最上段にＩＣチップ１０を収納しないトレー１を重ねる。そして、検査等必要に応じてトレー群の上下面を逆にし、第二平面１１２が上面になるようにする。この際にＩＣチップ１０は一のトレー１の収納部１２１内で支持突起３，３…に下方より支持されている状態から収納部１２内から脱することなく他のトレー１の収納部１２２へ移動し、突起７；７、８；８の肩部７１，７１…及び８１，８１…に下方から支持され，頭部７２，７２…、頭部８２，８２…により側面を保護される。そして、上段のトレー１を取り外しても、ＩＣチップ１０はトレー１に安定して収納されている。

【００２４】

【発明の効果】　以上のように請求項１に記載の発明では、第一平面と第二平面が表裏一体をなすトレーであって、第一平面上及び第二平面上に夫々収納部を有し、且つトレーを積み重ね、上下段の第一平面と第二平面を対向させ、第一平面上の第一収納部と第二平面上の第二収

納部により一個の収納部を形成するトレーであって、第一平面上には、収納部の側面を形成する切欠部を有する側壁を植立形成すると共に、第一収納部内の端部に支持突起を凸設し、第二平面上には、第一平面上に形成した側壁の切欠部に対応する位置に側柱を形成すると共に、第二収納部内に支持柱を形成したので、ＩＣチップの形状、特にＩＣチップから突出する端子がＩＣチップの上面に形成されているか下面に掲載されているか、に左右されず、同一形状でない各種ＩＣチップを収納することが可能である。又、ＩＣチップを収納したまま積み重ねられたトレー群を上下逆さまにすることが可能であり、ＩＣチップの上面及び下面双方を容易に観察点検することができるため、ＩＣチップの検査に便利であり、更に従来ほど細心の注意を払うことなくＩＣチップを収納したまま積み重ねられたトレー群を取扱い、運搬することが可能となり、便利である。

【００２５】又、請求項２に記載の発明によれば、第二平面上の側柱と支持柱を一体形成し、頭部とその両側に肩部を有する突起とし、第一平面上に形成した側壁の切欠部に対応する位置にその頭部を植立形成すると共に、肩部を第二収納部内方に延設して形成したので、収納されるＩＣチップをより安定して、確実に保持することが可能となった。又、トレーの製造も容易且つ低廉になすことが可能である。

【００２６】又、請求項３に記載の発明によれば、側壁は相互に隣接する四個の収納部の接点から延設した平面十字形の及びトレーの側端部にあっては平面Ｔ字形の角壁を植立して形成するので、収納されるＩＣチップをより安定して、確実に保持することが可能となった。

【００２７】又、請求項４に記載の発明によれば、第一平面上の第一収納部内には凹部を設けたので、ＩＣチップの端子のトレーへの接触をより防止することが可能で、ＩＣチップの端子の長短によりトレーの種類を換えることなく、様々な端子の形状に対応することが可能となった。

【００２８】又、請求項５に記載の発明によれば、第二平面の側縁に縁壁を形成したので、トレーを重ねた際に上段と下段のトレーのズレを確実に防止すると共に、上段のトレーによる下段のトレーに収納されたＩＣチップの押圧をより効果的に防止することが可能である。

【図面の簡単な説明】

【図１】　本発明一実施例上面部分図

【図２】　本発明一実施例下面部分図

【図３】　本発明一実施例使用状態における図１Ａ－Ａ断面図

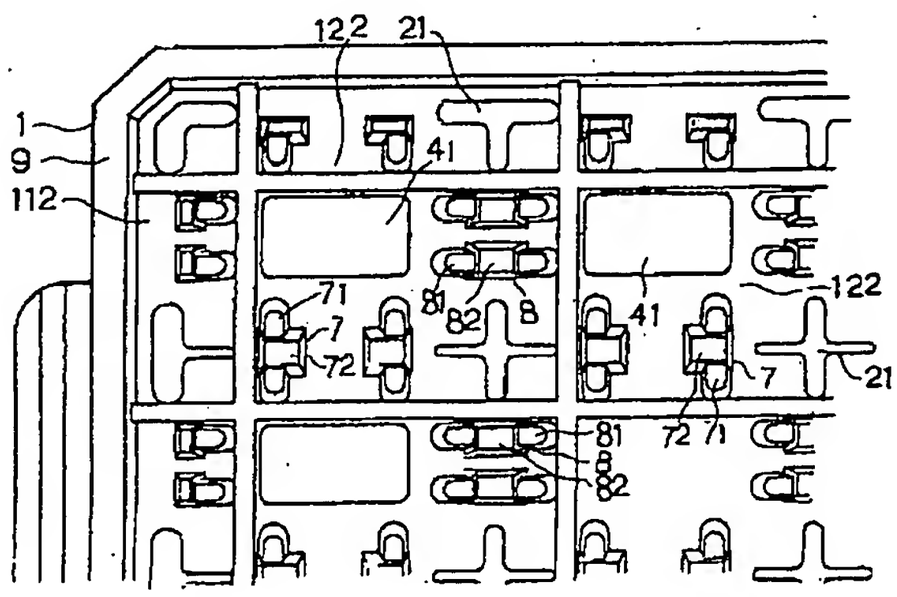
【図４】　本発明一実施例使用状態における図１Ｂ－Ｂ断面図

【図５】　本発明一実施例他使用状態における図１Ａ－Ａ断面図

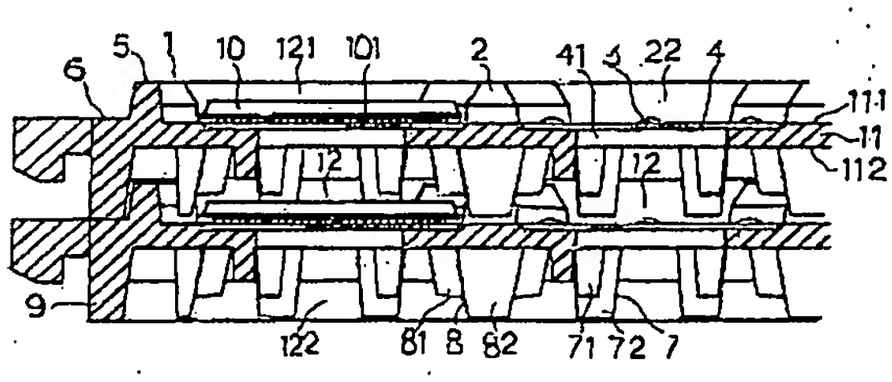
【符号の説明】

１	トレー
１１	平板
１１１	第一平面
１１２	第二平面
１２	収納部
２	角壁
２１	角壁孔
２２	切欠部
３	支持突起
４	凹部
４１	凹部孔
５	枠壁
６	側縁
７	突起
７１	肩部
７２	頭部
８	突起
８１	肩部
８２	頭部
９	縁壁
１０	ＩＣチップ
１０１	端子

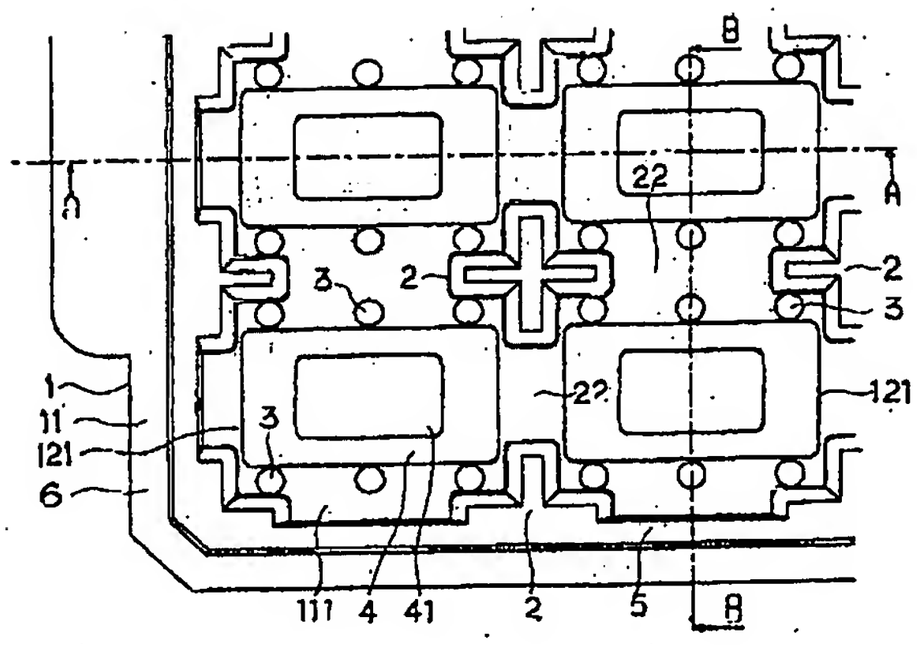
【図２】



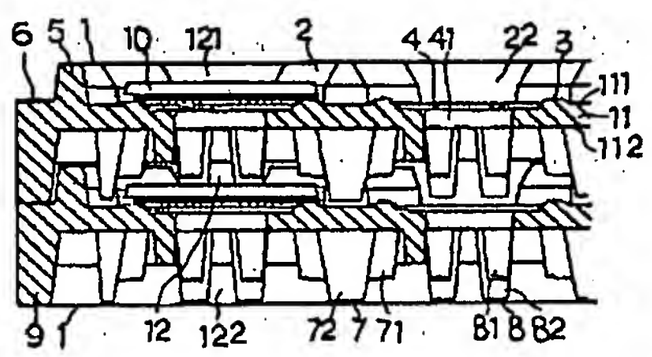
【図３】



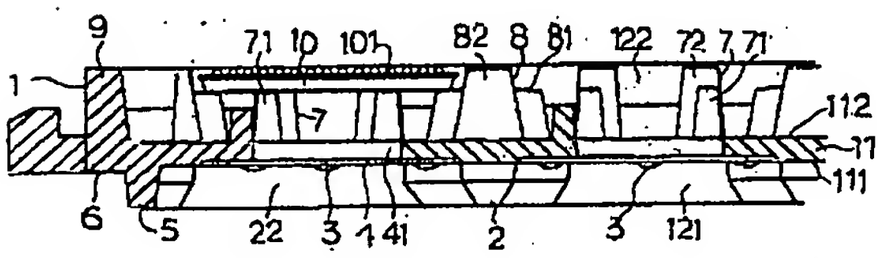
【図1】


B
A
22
3
2
121
1
11
6
111
4
41
5

【図4】


6
5
1
10
121
2
4
41
22
3
111
11
112
9
12
122
72
7
71
81
8
82

【図5】


9
71
10
101
82
8
81
122
72
7
71
1
112
11
111
6
5
22
3
4
41
2